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EXAMINER

NGUYEN, DUNG X

ART UNIT PAPER NUMBER

2631

DATE MAILED: 07/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,013

Applicant(s)

GOSSETT, CARROLL PHILIP

Examiner

Dung X Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 2, 3 - 7, 10, 11, 13 - 21, 23 - 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 - 25 and 30 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 3 - 7, 10, 11, 13 - 19, 26, and 29 is/are rejected.
- 7) ☒ Claim(s) 27 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Arguments

1. Applicant's arguments filed on 20 October 2003 have been fully considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. **Claims 11 and 29** recite a linear predictive coding filter in line 1 (Preamble). However, the body of the claim does not recite any structure relating to the filter. The claims appear to be a preamble without claim's body. If correction is not made in the next communication, a potential 112 rejection may apply.

3. **Claims 13 – 19** fail to compensate for the deficiencies noted in claim 11, they are likewise objected to.

4. **Claim 7 is objected** to because of the following informalities: On line 3, "input" should be changed to "inputted". Appropriate correction is required.

5. **Claim 27 is objected** to because of the following informalities: On line 10, "input" should be changed to "inputted". Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claim 1 is rejected** under 35 U.S.C. 102(b) as being anticipated by F. Takavira in "Adaptive Lattice Filters for Narrowband Interference Rejection in DS Spread Spectrum

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Systems”, Proceedings of the 1994 IEEE South African Symposium on Communications and Signal Processing, 1994, COMSIG-94, 04 October 1994, pp. 1 – 5.

Regarding claim 1, F. Takavira discloses:

- There must be an antenna for receiving a spread spectrum signal (see figure 1);
- A digital filter coupled to the antenna, wherein the digital filter comprises linear predictive coefficients representing interference inherent including periodic or quasi-periodic signals within a specified band containing the spread spectrum signal, (page 1, first column, Abstract and Introduction, lines 1 – 3, and page 2, first column, lines 1 - 21), and wherein the linear predictive coefficients are discarded (page 2, first column, lines 1 – 21. To go through the recursive process, the coefficients must be discarded).

8. **Claims 11, 13, and 18 are rejected** under 35 U.S.C. 102(b) as being anticipated by Kenney et al. (US patent # 6,009,129).

Regarding claim 11, Kenney et al. discloses that a linear predictive coding filter for filtering out IMD interference inherent including periodic or quasi-periodic signals (column 11, lines 1 – 14), wherein the linear predictive coding filter outputs IMD interference, which is then used for signal processing purposes (column 7, lines 59 – 65).

Regarding claims 13 and 18, respectively, as followed by the limitations analyzed in claim 11, Kenney et al. further discloses that its invention is using in DS-CDMA system (abstract and column 1, lines 66 - 67).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be

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patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made

10. **Claims 4 and 5 are rejected** under 35 U.S.C. 103(a) as being unpatentable over F. Takavira in “Adaptive Lattice Filters for Narrowband Interference Rejection in DS Spread Spectrum Systems”.

Regarding claim 4, as followed by the limitations analyzed in claim 1, F. Takavira differs from the instant claimed invention that it does not state that the specified band corresponds to IEEE 802.11(b).

However, F. Takavira discloses that its invention is used in direct sequence spread spectrum ((page 1, first column, Introduction, lines 1 – 3), and IEEE 802.11(b) is a standard of DSSS environment (Harry Newton, “Newton’s Telecom Dictionary”, ISBN # 1-57820-069-5, Malt Kelsey published, page 17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement F. Takavira to modify the system of to comply with the standard as specified in IEEE 802.11(b) since F. Takavira’s system has been a DSSS communication system for improving the communication system.

Regarding claim 5, as followed by the limitations analyzed in claim 1, F. Takavira differs from the instant claimed invention that it does not state that the specified band correspond to Bluetooth.

However, F. Takavira discloses that its invention is used in direct sequence spread spectrum (page 1, first column, Introduction, lines 1 – 3), and Bluetooth is a standard using frequency hopping spread spectrum technique (Harry Newton, “Newton’s Telecom Dictionary”, ISBN # 1-57820-069-5, Malt Kelsey published, pp. 96-97).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement F. Takavira to modify to comply with the specified by Bluetooth thereby its specified band corresponding to the Bluetooth. Since both frequency hopping and direct sequence are specific forms of spread spectrum communication system. Using a frequency hopping instead of direct sequence is just an alternative way of communicating in the spread spectrum environment.

11. **Claims 14, 16, 17, and 19 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Kenney et al. (US patent # 6,009,129).

Regarding claim 14, as followed by the limitations analyzed in claim 11, Kenney et al. differs from the instant claimed invention that it does not state that its system comprises a frequency hopping spread spectrum system.

However, Kenney et al. discloses that its invention is used in direct sequence spread spectrum (column 1, lines 66 – 67).

Since frequency hopping and direct sequence have been specific forms of spread spectrum communication system. Using a frequency hopping instead of direct sequence is just an alternative way of communicating in the spread spectrum environment.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Kenney et al. to provide a system comprising a frequency hopping spread spectrum system for a designed choice.

Regarding claim 16, as followed by the limitations analyzed in claim 11, Kenney et al. differs from the instant claimed invention that it does not state that the filter is in compliance with IEEE 802.11(b).

However, Kenney et al. discloses that its invention is used in direct sequence spread spectrum ((page 1, first column, Introduction, lines 1 – 3), and IEEE 802.11(b) is a standard of DSSS environment (Harry Newton, “Newton’s Telecom Dictionary”, ISBN # 1-57820-069-5, Malt Kelsey published, page 17).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to Kenney et al. to modify the system of to comply with the standard as specified in IEEE 802.11(b) since Kenney et al.'s system has been a DSSS communication system for improving the communication system.

Regarding claim 17, Kenney et al. differs from the instant claimed invention that it does not state that the filter is in compliance with Bluetooth.

However, Kenney et al. discloses that its invention is used in direct sequence spread spectrum (column 1, lines 66 – 67). Since both frequency hopping and direct sequence are specific forms of spread spectrum communication system. Using a frequency hopping instead of direct sequence is just an alternative way of communicating in the spread spectrum environment, and Bluetooth is a standard using frequency hopping spread spectrum technique (Harry Newton, "Newton's Telecom Dictionary", ISBN # 1-57820-069-5, Malt Kelsey published, pp. 96-97).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Kenney et al. to modify to comply with the specified by Bluetooth thereby its filter is in compliance with the Bluetooth for improving the communication system.

Regarding claim 19, Kenney et al. differs from the instant claimed invention that it does not state that the digital filter is used in a wireless peer-to-peer system.

However, peer-to-peer system is a small network (typically a LAN), one branch of communication system, in which every mode has equal access to the network and can send and receive data at any time without to wait for permission from a control mode (Harry Newton, "Newton's Telecom Dictionary", ISBN # 1-57820-069-5, Malt Kelsey published, page 523).

Since the current claimed invention has been considered as transmitting and receiving speed (specification, page 4, lines 2 – 6), and a network also considers in transmitting and receiving, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement Kenney et al.'s digital filter into a wireless peer-to-peer system for security and reliability.

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12. **Claim 15 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Kenney et al. (US patent # 6,009,129), in view of F. Takavira in “Adaptive Lattice Filters for Narrowband Interference Rejection in DS Spread Spectrum Systems”.

Regarding claim 15, as followed by the limitations analyzed in claim 11, Kenney et al. differs from the instant claimed invention that it does not show wherein linear terms are discarded.

However, F. Takavira discloses that the linear terms are discarded (page 2, first column, lines 1 – 21. To go through recursive process, the coefficients must be discarded).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Kenney et al. and F. Takavira so as the linear predictive terms being discarded for recursive process.

13. **Claims 2, 10, 26, and 29 are rejected** under 35 U.S.C. 103(a) as being unpatentable over F. Takavira in “Adaptive Lattice Filters for Narrowband Interference Rejection in DS Spread Spectrum Systems”, in view of Lee et al. (US patent # 6,426,977 B1).

Regarding claim 2, as followed by the limitations analyzed in claim 1, F. Takavira differs from the instant claimed invention that it does not show that its digital filter comprises a linear predictive coding filter.

However, Lee et al. discloses the need of coding (column 4, lines 23 – 25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine F. Takavira and Lee et al. to apply the linear predictive filter technique into a large number of discrete codes for facilitating covertness, security, and multiple access (column 4, lines 23 – 25 of Lee et al.).

Regarding claim 10, as followed by the limitations analyzed in claim 2, F. Takavira further discloses wherein the linear predictive filter outputs a prediction error (page 1, first

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column, Abstract and Introduction, lines 1 – 3), of course, which is used for signal processing purposes.

Regarding claim 26, F. Takavira discloses:

- There must be an antenna for receiving a spread spectrum signal (see figure 1);
- A linear predictive coefficients having a lattice structure coupled to the antenna, wherein the digital filter is used to remove inherent including periodic or quasi-periodic signals within a specified band containing the spread spectrum signal, (page 1, first column, Abstract and Introduction, lines 1 – 3, and page 2, first column, lines 1 - 21).

F. Takavira differs from the instant claimed invention that it does not show that its digital linear predictive filter comprises a linear predictive coding filter.

However, Lee et al. discloses the need of coding (column 4, lines 23 – 25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine F. Takavira and Lee et al. to apply the linear predictive filter technique into a large number of discrete codes for facilitating covertness, security, and multiple access (column 4, lines 23 – 25 of Lee et al.).

Regarding claim 29, F. Takavira discloses a linear predictive filter, which is inherently filtered out periodic or quasi-periodic signals in a spread spectrum system (page 1, first column, Abstract and Introduction, lines 1 – 3), wherein the filter comprises a gradient adaptive lattice (page 3, first column, line 5 - 23, and figure 2).

F. Takavira differs from the instant claimed invention that it does not show that its linear predictive filter comprises a linear predictive coding filter.

However, Lee et al. discloses the need of coding (column 4, lines 23 – 25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine F. Takavira and Lee et al. to apply the linear predictive filter

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technique into a large number of discrete codes for facilitating covertness, security, and multiple access (column 4, lines 23 – 25 of Lee et al.).

14. **Claim 29 is also rejected** under 35 U.S.C. 103(a) as being unpatentable over Zeidler et al. in “Frequency Tracking Performance of Adaptive Lattice Filters”, Conference Record of the Twenty-Fifth Asilomar Conference on Signals, Systems and Computers, 1991, 04 – 06 November 1991, vol. 2, pp. 643 – 649, in view of Lee et al. (US patent # 6,426,977 B1).

Regarding claim 29, Zeidler et al. discloses a linear predictive filter, which is inherently filtered out periodic or quasi-periodic signals in a spread spectrum system (abstract), wherein the filter comprises a gradient adaptive lattice (page 644, second column, line 23 to page 645, line 25, and figure 1).

Zeidler et al. differs from the instant claimed invention that it does not show that its linear predictive filter comprises a linear predictive coding filter.

However, Lee et al. discloses the need of coding (column 4, lines 23 – 25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Zeidler et al. and Lee et al. to apply the linear predictive filter technique into a large number of discrete codes for facilitating covertness, security, and multiple access (column 4, lines 23 – 25 of Lee et al.).

15. **Claim 6 is rejected** under 35 U.S.C. 103(a) as being unpatentable over F. Takavira in “Adaptive Lattice Filters for Narrowband Interference Rejection in DS Spread Spectrum Systems”, in view of Zeidler et al. in “Frequency Tracking Performance of Adaptive Lattice Filters”.

Regarding claim 6, as followed by the limitations analyzed in claim 1, F. Takavira differs from the instant claimed invention that it does not further show its invention comprising a modulated CDMA receiver.

However, Zeidler et al. discloses that its invention comprising a modulated CDMA receiver (page 643, second column, lines 12 – 25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine F. Takavira and Zeidler et al. to give more detail of the spread spectrum receiver.

16. **Claim 7 is rejected** under 35 U.S.C. 103(a) as being unpatentable over F. Takavira in “Adaptive Lattice Filters for Narrowband Interference Rejection in DS Spread Spectrum Systems”, in view of Yuen (US patent application # 2003/0185286 A1).

Regarding claim 7, as followed by the limitations analyzed in claim 1, F. Takavira differs from the instant claimed invention that it does not further show its invention comprising an A/D converter that converts the spread spectrum signal received by the antenna into a digital signal, which is inputted directly into the digital filter.

However, Yuen discloses that its invention comprising A/D converters (33, 34) that converts the spread spectrum signal received by the antenna (page 2, second column, line 1) into a digital signal, which is inputted directly into the digital matched filter (35, 37).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine F. Takavira and Yuen so as to ensure the received spread spectrum signal going directly to digital filter.

Allowable Subject Matter

17. **Claim 27 would be allowable** if rewritten or amended to overcome the objection(s), set forth in this Office action.

18. **Claim 28 is objected** to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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19. **Claims 20, 21, 23 – 25, and 30 are allowed.** The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 20, the prior art of record fails to show or render obvious of a method, comprising:

- receiving a spread spectrum signal;
- digitizing the spread spectrum;
- determining linear predictive coefficients corresponding to the spread spectrum signal;
- discarding the linear predictive coefficients, wherein the linear predictive coefficients are not used to actively filter the spread spectrum signal;
- determining error coefficients to the spread spectrum signal;
- processing the error coefficients to retrieve information contained in the spread spectrum signal.

Regarding claim 30, the prior art of record fails to show or render obvious of a method, comprising:

- receiving a spread spectrum signal;
- digitizing the spread spectrum;
- using a linear predictive coding filter to determining linear predictive coefficients and error coefficients corresponding to the spread spectrum signal;
- performing a gradient adaptive lattice method to determine the linear predictive coefficients and error coefficients;
- discarding the linear predictive coefficients;
- using the error coefficients in signal processing.

Contact Information

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung X. Nguyen whose telephone number is (703) 305-4892. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:30 PM.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Ghayour Mohammad H. can be reached on (703) 306-3034. The fax number for this group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

DXN

June 16, 2004


JEAN B. CORRIELUS
PRIMARY EXAMINER

6/28/04